

PARTNERSHIP FOR
clean competition

2023

ANNUAL REPORT

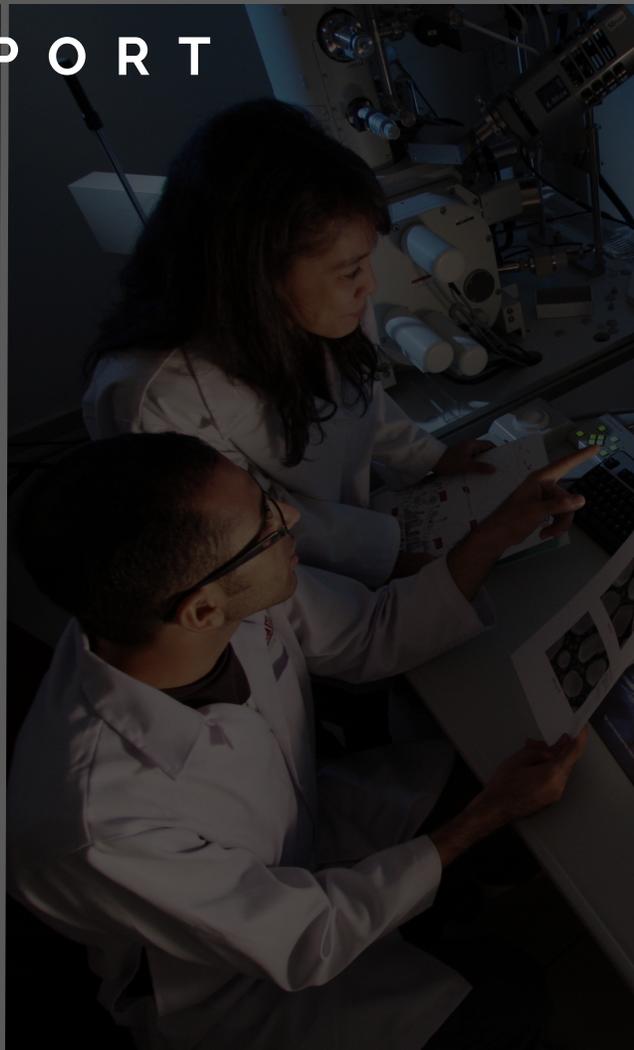
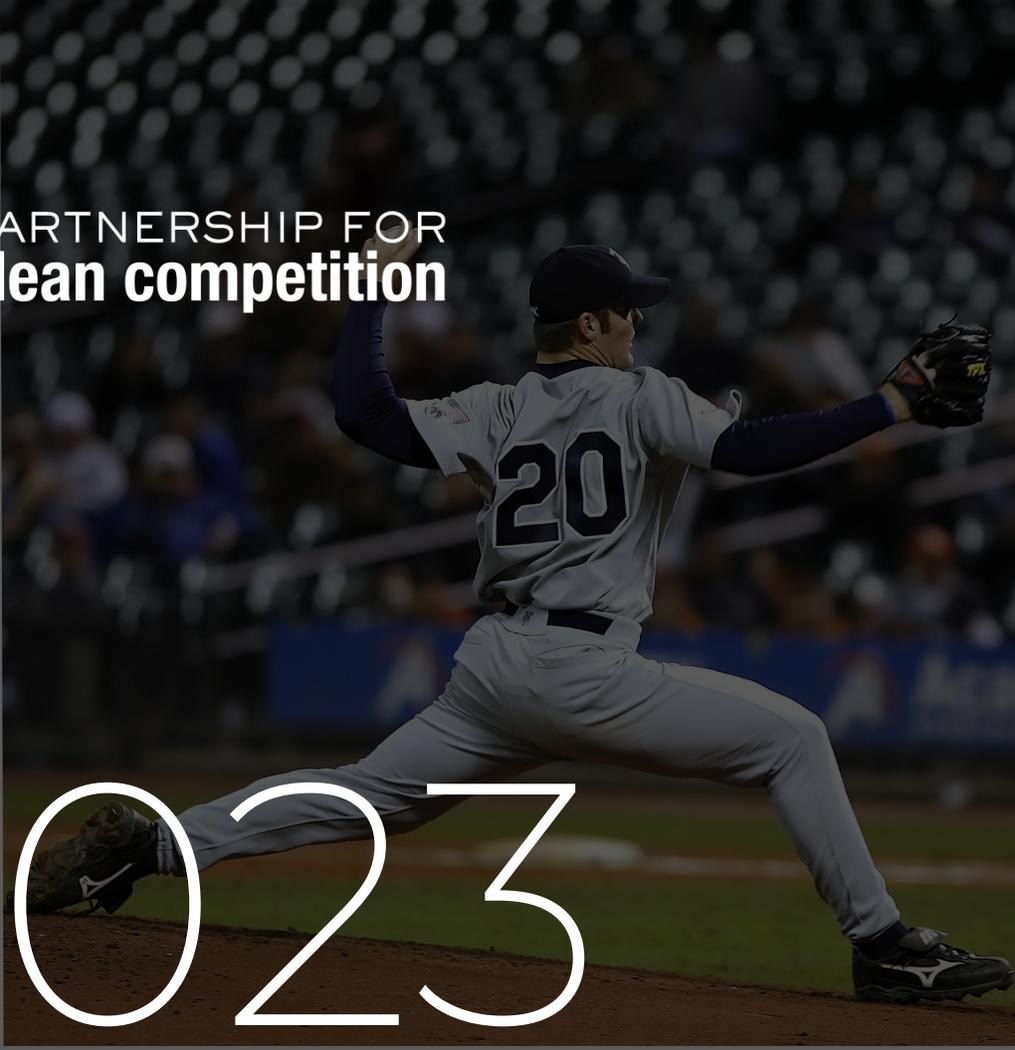




Table of Contents

3 | About the PCC

4 | Letter from the Executive Director

5 | Leadership

12 | 2023 in Review

15 | PCC 2023 Conference

18 | Projects Funded

19 | Publications and Presentations

23 | Financials

ABOUT THE PCC

Doping is a global problem.
We fund solutions.

The partnership for clean competition is a nonprofit, 501 (c) (3) organization working to protect the integrity of sport and public health by engaging and supporting the world's top scientists and innovators in high-quality anti-doping research and development.



LETTER FROM THE EXECUTIVE DIRECTOR

Dear Supporters,

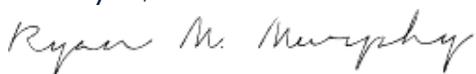
The Partnership for Clean Competition (PCC) celebrated its milestone **15th anniversary** in 2023. Since the first grant was funded back in 2008, the PCC has been dedicated to protecting the integrity of sport and public health by engaging and supporting the world's top scientists and innovators in high-quality anti-doping research and development. This was no more evident than during the **2023 PCC Conference Impact of Global Anti-Doping Scientific Research: Innovation & Advancement** held at Major League Baseball's Headquarters in New York, NY USA. This conference brought together almost **200 people**, both in-person and virtually, for the multi-day event.

Keynote speakers and U.S. Olympic ice dancers Evan Bates and Madison Chock started off the conference discussing their first-hand experience due to impact from an anti-doping violation by a competitor at the 2022 Beijing Olympic Games. The athletes were quoted **"We are honored to be here today, to recognize the work being done in the anti-doping movement. As athletes, we are the ones who reap the benefits of all the hard work that the researchers do, and the policy makers do, to protect fair play and ensure that there is a level playing field."**

The core of the PCC's mission remains funding exceptional anti-doping research. The PCC convened **two Scientific Advisory Board (SAB) meetings** where new grants were reviewed, working group updates presented, and research project reports were discussed. To that end, the PCC committed **over \$1 million in funding** via Research Grants, Fellowships, PCC-WADA joint-funded research agreements, and Micro-Grants. The PCC continues to work across the globe to fund projects: a total of **12 projects representing five countries across two regions** were approved in 2023.

I would like to thank all of our dedicated supporters for contributing to the PCC over the past fifteen years, especially our Founding Members and Contributors, dedicated Board Members, the Scientific Advisory Board, and the research scientists carrying out the work that brings us all together. Through the collaboration and investment of our engaged community the PCC will continue to grow and support high-quality anti-doping research for many more years. Thank you to all those who share our commitment to protecting clean athletes.

Thank you,

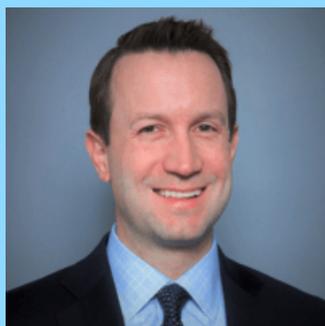


Executive Director

A man in a blue suit and light blue shirt is speaking at a podium. He is smiling and looking to his right. A microphone is positioned in front of him. A water bottle is on the podium to his right. A name tag is visible on his chest. The word "Leadership" is overlaid in white text across the center of the image.

Leadership

BOARD OF GOVERNORS



Jon Coyles
*Major League
Baseball (MLB)*

Jon Coyles serves as Vice President of Drug, Health and Safety Programs at Major League Baseball. In his role, Coyles is responsible for overseeing all aspects of Major League Baseball's various drug prevention and treatment programs, including the management of the programs' scientific experts, medical consultants, specimen collection officers, and testing laboratories. Coyles also plays a key role in collective bargaining negotiations with the Major League Baseball Players Association, including the annual review and update of the Joint Drug Program.

Board Chair



Janelle Winston
*National Football
League (NFL)*

Janelle L. Winston is an attorney with the National Football League, representing the NFL and its thirty-two Member Clubs across the country in labor-management disputes involving compensation and salary, player discipline, electronic medical records, and workers' compensation. Her practice covers negotiation, arbitration, litigation and settlement.



Chris McCleary
*United States
Olympic &
Paralympic
Committee (USOPC)*

Chris McCleary joined the United States Olympic & Paralympic Committee in 2015 and serves as its General Counsel & Chief Operating Officer. In this role, he leads the USOPC teams in legal, compliance, ethics, NGB oversight, finance, information technology, events & logistics, and facilities. He also leads the USOPC's governance work and serves as corporate secretary to the USOPC board of directors. McCleary oversees the USOPC's partnerships with the World Anti-doping Agency, U.S. Anti-doping Agency and Partnership for Clean Competition. He also serves as a member of the Association of National Olympic Committee's Legal Commission.



Ed Merrens
*M.D.
United States
Anti-Doping Agency
(USADA)*

Dr. Ed Merrens is Chief Clinical Officer for Dartmouth Health and Associate Professor of Medicine at the Geisel School of Medicine at Dartmouth. Dr. Merrens oversees clinical operations across the Dartmouth Health system. He is a Board Member of the U.S. Anti-Doping Agency (USADA). He has a long-standing involvement in international sports, serving as the team physician and medical director for the USA Biathlon from 1998-2014. He has served as team physician with the U.S. Olympic & Paralympic Committee for the World University Games in Beijing, China (2001) and Olympic Winter Games in Salt Lake City, United States (2002), Torino, Italy (2006), Vancouver, Canada (2010), and Sochi, Russia (2014). Dr. Merrens is a 1988 graduate of Dartmouth College, a 1994 graduate of the Geisel School of Medicine at Dartmouth and holds a 2013 Masters degree in Health Care Delivery Science from the Tuck School of Business and Dartmouth College. He works clinically as a Hospitalist at Dartmouth-Hitchcock Medical Center in Lebanon, NH.

STAFF & OFFICERS



Ryan Murphy
Executive Director

Ryan Murphy was named Executive Director for the Partnership for Clean Competition Research Collaborative in November 2021. In this role, Murphy oversees organizational strategy and daily operations – including budgeting, fundraising, business development, grant administration, scientific outreach, and communication with the PCC Board of Governors and Scientific Advisory Board. Murphy completed an MA in International Sports Law from Anglia Ruskin University in Chelmsford, England, as well as an MSc in Sport and Recreation Management from The University of Sheffield in Sheffield, England. He is a graduate of West Chester University of Pennsylvania with a BSc in Kinesiology. Murphy previously worked as an International Doping Control Officer for International Doping Tests & Management, from 2003 – 2015, conducting doping control tests (in-competition and out-of-competition) on athletes throughout the world.



Jocelyn Quiles
*Manager,
Communications &
Operations*

Jocelyn Quiles started as the Manager of Communications and Operations for the Partnership for Clean Competition in September 2022. In this role, Quiles will work in partnership with the PCC's Executive Director in overseeing stakeholder engagement, implementing communication and outreach efforts, and database management. Prior to joining the Partnership for Clean Competition, Quiles attended Indiana State University where she competed in five years of cross country and track and field. She completed a Bachelor of Science in Communication, Public Relations in 2021, and a Master of Business Administration in 2022.



Eric Kerzner
*National Football
League*

PCC Treasurer

Eric Kerzner works for the National Football League as Vice President, Labor Relations, supporting Club football and finance executives with the financial components of player contracts and the salary cap. Eric's primary responsibilities include negotiating, administering, and enforcing the League's Collective Bargaining Agreements with the NFL Players Association on financial-related labor matters, including player contracts, the salary cap, compliance, and strategic planning. Eric is also a member of the bargaining team that negotiates with the NFL Referees Association. Prior to joining the NFL, Eric worked in public accounting at McGladrey and Pullen, LLP. Eric graduated from the University of Connecticut in 1996, with a Bachelor of Science degree in Accounting.



Lindsey Ingraham
*Major League
Baseball*

PCC Secretary

Lindsey Ingraham serves as the Director of MLB Drug, Health and Safety Programs, where she assists in the administration of all of Major League Baseball's drug prevention and treatment programs, including program updates, testing, results management, and disciplinary measures. She works closely with the labs and collectors to manage all aspects of the testing and results reporting processes. Additionally, in this role, Lindsey plays a key part in the development and delivery of various educational initiatives. Every year she delivers educational programming to Minor League players during Spring Training, to newly drafted players upon signing, and to Top Prospects during the Arizona Fall League. Lindsey was hired by the Office of the Commissioner of Baseball as Specialist, MLB Drug, Health and Safety Programs in January 2015. Lindsey graduated from Cornell University in 2005 and The George Washington University Law School in 2010.

SCIENTIFIC ADVISORY BOARD CO-CHAIRS



James Dalton *Ph.D*

James T. Dalton, Ph.D. is Executive Vice President and Provost at the University of Alabama. He received his Bachelor of Science in Pharmacy from the University of Cincinnati (1986) and Doctor of Philosophy in pharmaceuticals and pharmaceutical chemistry from Ohio State University (1990). Dr. Dalton rose through the faculty ranks in the Department of Pharmaceutical Sciences in the College of Pharmacy at the University of Tennessee (1992-2000) before returning to Ohio State where he served as Professor and Chair in the Division of Pharmaceutics (2000-2007). He began an entrepreneurial leave of absence from Ohio State in 2005 and left OSU in 2007 to devote his full time effort as Chief Scientific Officer at GTX, Inc. in Memphis, TN (2007-2014) where he oversaw the preclinical and clinical development of selective androgen receptor modulators. Dr. Dalton then served as Dean at the University of Michigan College of Pharmacy from 2014-2020. He is co-inventor of enobosarm (aka ostarine; the first reported selective androgen receptor modulator) and is an elected member of the National Academy of Medicine.

Matthew Fedoruk *Ph.D*

Matthew Fedoruk, Ph.D. currently works as the Chief Science Officer at the U.S. Anti-Doping Agency (USADA).

With more than 14 years of experience in antidoping and a Ph.D. in Pathology and Laboratory Medicine, Dr. Fedoruk also serves as a standing member of the IWF Anti-Doping Committee, the WADA Health, Medicine and Research Committee (HMRC), the TDSSA

Expert Group Chair and Athlete Biological Passport (ABP) Ad-Hoc Working Group.

Before joining USADA, Dr. Fedoruk worked at the Canadian Centre for Ethics in Sport (CCES) and served with the Vancouver 2010 Organizing Committee for the 2010 Olympic and Paralympic Winter Games in Canada. He currently lives in sunny Colorado Springs, Colorado, which is also known as 'Olympic Town USA' for being home to the U.S. Olympic Committee, the high-altitude Olympic Training Center, numerous national sport federations and USADA.



SCIENTIFIC ADVISORY BOARD



Gerhard Baumann
M.D.

Past Chief of Endocrinology and Metabolism at the Veterans Administration Lakeside Medical Center and the Associate Director of the Northwestern University General Clinical Research Center in Chicago, Dr. Baumann is a Professor of Medicine Emeritus at Northwestern University. Dr. Baumann characterized the complex nature of growth hormone in human blood, including its various isoforms. He discovered the growth hormone binding protein, the circulating ectodomain of the growth hormone receptor. He is also the co-discoverer of the first reported mutation in the growth hormone releasing hormone (GHRH) receptor gene causing a severe form of familial growth hormone deficiency. He has broad expertise in endocrinology, with particular emphasis on pituitary disease. He is an elected member of the American Society of Clinical Investigation and the Association of American Physicians.



Lori Bestervelt
Ph.D

Dr. Lori Bestervelt is an Entrepreneurial Executive who brings the strong combination of technical and scientific expertise and business acumen, as well as deep P&L experience in product line expansion. She is proud of her high level of name recognition within the dietary supplements, U.S. professional sports nutrition and anti-doping industries. Lori completed Competition & Strategy through the Harvard Business School Executive Education and Corporate Innovation through MIT's Sloan Executive Education. She earned a Doctorate of Toxicology, a Master of Science in Nutritional Biochemistry and a Bachelor of Science in Microbiology & Immunology, all at the University of Michigan. She has been a Member of the Council for Responsible Nutrition and the American Herbal Products Association.



Steve Elliot
Ph.D

Steve retired from his Scientific Executive Director Position at Amgen in 2012, where he had worked since 1983. During his early years at the company, he performed structure-function studies on erythropoietin and the erythropoietin receptor and is the inventor of Aranesp, a re-engineered analog of rHuEpo with a longer serum half-life. He also played a key role when three cross country skiers who doped with Aranesp were caught and stripped of their gold medals and suspended from competition for two years following the 2002 Olympic Winter Games. Dr. Elliott continues to work in conjunction with the anti-doping movement.



Gary Green
M.D.

Gary Green, MD, was appointed Medical Director for Major League Baseball in 2010. He also serves as research director for MLB. He is a fellow in the American College of Physicians and American College of Sports Medicine and a Clinical Professor in the UCLA School of Medicine in the Division of Sports Medicine. Dr. Green is the head team physician for Pepperdine University and serves on the California Interscholastic Federation Medical Advisory Committee. He is also on review boards for USADA for adverse analytical findings and therapeutic use exemptions. He is in private practice in Pacific Palisades, California at the Medical Doctors of St. John's.

SCIENTIFIC ADVISORY BOARD



John Lombardo
M.D.

Dr. John Lombardo serves as the Independent Administrator for the NFL Policy on Performance-Enhancing Substances. He also served as a member of the WADA Therapeutic Use Exemption Expert Group, a reviewer of therapeutic use exemptions for USADA and PGA and a member of the Board of Directors for Sports Medicine Research and Testing Laboratory. He earned a bachelor's degree from the University of Dayton, his medical degree from The Ohio State University and completed his Family Medicine residency at St. Elizabeth's Medical Center in Dayton, Ohio. He served as Medical Director of the Section of Sports Medicine at the Cleveland Clinic and the Medical Director of Sports Medicine at Ohio State University.



Tom Martin
Ph.D.

Dr. Tom Martin is the Independent Program Administrator for Major League Baseball's Joint Drug Prevention and Testing Program. A native of Forked River, New Jersey, Dr. Martin received his ROTC commission into the Army Medical Service Corps in 1990 and entered Active Service after obtaining a Ph.D. in Inorganic Chemistry from Clemson University in 1995. As part of his military service, Dr. Martin directed two military drug testing laboratories. He culminated his Army career as the Director, Drug Testing and Program Policy in the Office of the Under Secretary of Defense for Personnel and Readiness. He retired from the Army in 2018 as a Colonel and started his current position with the MLB/MLB Players Association.



Alvin Matsumoto
M.D.

Dr. Matsumoto is a Professor Emeritus in the Division of Gerontology & Geriatric Medicine, Department of Medicine at the University of Washington (UW) School of Medicine, and Clinical Investigator in the Geriatric Research, Education and Clinical Center (GRECC) at the Veteran Affairs Puget Sound Health Care System (VAPSHCS) in Seattle. He serves as a member of the Board of Directors of the United States Anti-Doping Agency (USADA); President of the Board of Directors of the Seattle Institute for Biomedical and Clinical Research; and co-chair of the Partnership for the Accurate Testing of Hormones. Previously, he was Director of the Clinical Research Unit, Associate Director of the GRECC, Chief of Gerontology, and an Attending Physician at the VAPSHCS, and on the faculty at the UW for more than 40 years. His research expertise is in androgens and male reproductive endocrinology.



Annette Salmeen
D.Phil.

Dr. Salmeen, D.Phil., was a 1996 Olympian and gold medalist. She served as an athlete's representative for the USA Swimming national governing body from 1996 to 2005. In 2005, she was elected as an athlete member of the U.S. Anti-Doping Agency Board of Directors and served until 2012. She was a member of the USADA board research committee and was also involved with efforts to support athlete education and the USADA True Sport initiative. She earned her doctoral degree in Biochemistry as a Rhodes Scholar at Oxford in 2001 and studied growth factor signaling pathways as a post-doctoral fellow in the Chemical and Systems Biology department at Stanford. She is currently a lecturer in the Human Biology Program at Stanford.



Michael Sawka
Ph.D

Chief Scientific Officer of Environmental Physiology and Hydration Associates, Adjunct Professor of Biological Sciences at Georgia Institute of Technology, past Department of Army Science and Technology Senior Scientist appointee, and Chief of Thermal and Mountain Medicine Division at the US Army Research Institute of Environmental Medicine. Dr. Sawka is an expert in environmental physiology (heat, cold, high-altitude), blood volume control, fluid/ electrolyte balance, temperature regulation, and exercise physiology. Dr. Sawka is a Fellow of the American Physiological Society and the American College of Sports Medicine.



John Yates III
Ph.D

The Ernest W. Hahn Professor in the Department of Chemical Physiology and Molecular & Cellular Neurobiology at The Scripps Research Institute, Dr. Yates is the lead inventor of the SEQUEST software for correlating tandem mass spectrometry data to sequences in the database and developer of the shotgun proteomics technique for analysis of protein mixtures. Dr. Yates was ranked by Citation Impact, Science Watch as one of the Top 100 Chemists for the decade, 2000-2010. Dr. Yates is the Editor in Chief at the Journal of Proteome Research.



2023 in
Review

2023 BY THE NUMBERS



\$1M +
Awarded

12

Projects
funded in

5

Countries



11



Publications

25



Presentations



The Anti-Doping Podcast:

11,815
Downloads

24 New episodes featuring guests from
8 different countries



In 2023, the PCC celebrated its **15th Anniversary!**

To commemorate this milestone, we released podcast episodes featuring guests from each of our founding and contributing organizations. Be sure to give them a listen!

15th Anniversary Episodes

[93 - PGA TOUR's Anti-Doping Program - Renee Tomb](#)

[100 - Perspectives on the PCC's 15 Years of Anti-Doping Excellence - Travis Tygart](#)

[101 - USPOC's Continued Commitment to Clean Sport and Anti-Doping Science - Sarah Hirshland](#)

[114 - NFL's Continued Support of Clean Sport and the PCC - Adolpho Birch](#)

[116 - Reflection on MLB's Anti-Doping Efforts and the First 15 Years to the PCC - Jon Coyles and Dr. Gary Green](#)

15 years of funding anti-doping research would not be possible without our sponsors. Thank you for your continued support!



#PCC 2023

Impact of Global Anti-Doping Scientific Research: Innovation & Advancement

Session 1

KEYNOTE SESSION: Why Effective Anti-Doping Programs Matter to Athletes

Panel: Mr. Evan Bates OLY & Ms. Madison Chock OLY
Moderator: Mr. Ryan Murphy



Mr. Evan Bates OLY & Ms. Madison Chock OLY

Investing in Anti-Doping Research: Reflecting on 15 Years of PCC Excellence and Beyond

Panel: Mr. Kevin Manara, Ms. Kacie Wallace, & Dr. David Howman
Moderator: Mr. Travis Tygart

Translational Research Impact - Blood Detection of Human Growth Hormone: Advancements & Hurdles

Panel: Dr. Andrew Hoofnagle, Dr. Geoff Miller, & Dr. Martin Bidlingmaier
Moderator: Dr. James Dalton



Dr. David Howman

Building Anti-Doping Science Careers - Perspectives from PCC Fellows

Panel: Dr. Sarah Solheim, Dr. Jenna Goodrum, & Dr. Federico Ponzetto
Moderator: Dr. Laura Lewis

Understanding the Dangers of Contamination from Foods & Dietary Supplements - Raw Ingredients to Off-the-Shelf Products

Panel: Dr. Amy Eichner, Mr. John Travis, & Mr. David Ellis
Moderator: Dr. Lori Bestervelt



Dr. Federico Ponzetto, Dr. Sarah Solheim, & Dr. Jenna Goodrum

#PCC 2023

Impact of Global Anti-Doping Scientific Research: Innovation & Advancement

Session 2

Lab Director Perspectives: Evolving Research Needs for Labs in 2023

Panel: Dr. Henrique Marcelo Gualberto Pereira, Dr. Daniel Eichner, & Dr. Yvette Dehnes
Moderator: Dr. Gary Green



Dr. Yvette Dehnes

Research Supporting Results Management Decisions: Administration Studies to Elucidate Doping vs. Contamination Scenarios

Dr. Mario Thevis



Dr. Henrique Pereira

Adoption of DBS into Routine Doping Control: Perspectives from MLB and USADA Programs for Athletes

Mr. Jon Coyles & Dr. Matthew Fedoruk



Dr. Matthew Fedoruk

#PCC 2023

Impact of Global Anti-Doping Scientific Research: Innovation & Advancement

Session 3

Rapid Research Update: Tackling Blood Doping

Panel: Dr. Michael Sawka, Dr. Nikolai Nordsborg, & Dr. Jean-Francois Naud
Moderator: Dr. Steven Elliott



Dr. Jean-Francois Naud

A Peek Under the Hood: Urinalysis Advancements and Complexities Inside an Anti-Doping Laboratory

Panel: Dr. Tiia Kuuranne & Mr. Brian Ahrens
Moderator: Dr. Daniel Eichner



Dr. Tiia Kuuranne & Mr. Brian Ahrens

Anti-Doping Innovation: What's New on the Horizon & Why is Continued Innovation Important?

Panel: Dr. Erwin Berthier, Mr. Gabe Baida, Mr. David Weiss, Mr. Andy Levinson, & Dr. Edward Goucher
Moderator: Dr. Matthew Fedoruk



Mr. Gabe Baida, Dr. Edward Goucher, & Dr. Erwin Berthier

Communicating & Covering Doping Issues in Sports

Mr. Tim Brown
Moderator: Mr. Michael Teevan

PROJECTS FUNDED

\$1,059,323 Awarded

- **SOPHIA KRUMBHOLZ**, COLOGNE LABORATORY. EFFECT OF ALTERNATIVE ROUTES OF DRUG ADMINISTRATION ON METABOLIC PROFILES IN DOPING CONTROLS - EXPOSURE VS. INTAKE. (DE) **FELLOWSHIP**
- **TRINE HALVORSENT**, UNIVERSITY OF OSLO. NOVEL AFFINITY SAMPLER FOR SENSITIVE ANALYSIS OF CHALLENGING DOPING AGENTS. (NO) **GRANT**
- **DANIEL WESTMATTELMANN**, UNIVERSITY OF MÜNSTER. USER PERSPECTIVES ON REMOTE SAMPLING SYSTEMS. (DE) **GRANT**
- **CHRISTOPH STOVE**, UNIVERSITY OF GHENT. *FULLY AUTOMATED ANALYSIS OF STEROID HORMONES IN DRIED BLOOD SPOTS.* (BE) **GRANT, JOINT FUND**
- **FONG-HA LIU**, NATIONAL MEASUREMENT INSTITUTE. *NEW CRMS TO SUPPORT LINEAR MIXING MODEL STUDIES BY GC-C-IRMS.* (AU) **GRANT, JOINT FUND**
- **FONG-HA LUI**, NATIONAL MEASUREMENT INSTITUTE. *NEW CRM TO SUPPORT DETECTION OF δ α -HYDROXY-ANDROSTENEDIONE BY CIR IN ANTI-DOPING ANALYSIS.* (AU) **GRANT, JOINT FUND**
- **GÜNTER GMEINER**, SEIBERSDORF LABOR GMBH DOPING CONTROL LABORATORY. *T23A01GG - PRODUCTION OF ANDARINE GLUCURONIDE.* (AT) **GRANT, JOINT FUND**
- **GÜNTER GMEINER**, SEIBERSDORF LABOR GMBH DOPING CONTROL LABORATORY. *T23A02GG - PRODUCTION OF ADRAFINIL GLUCURONIDE.* (AT) **GRANT, JOINT FUND**
- **GÜNTER GMEINER**, SEIBERSDORF LABOR GMBH DOPING CONTROL LABORATORY. *T23A03GG - PRODUCTION OF 17-EPI-OXYMESTERONE LTM.* (AT) **GRANT, JOINT FUND**
- **GÜNTER GMEINER**, SEIBERSDORF LABOR GMBH DOPING CONTROL LABORATORY. *T23A04GG - PRODUCTION OF HYDRAFINIL GLUCURONIDE.* (AT) **GRANT, JOINT FUND**
- **GÜNTER GMEINER**, SEIBERSDORF LABOR GMBH DOPING CONTROL LABORATORY. *T23A05GG - PRODUCTION OF DHCMT METABOLITE M3.* (AT) **GRANT, JOINT FUND**
- **MICHAEL POLET**, UNIVERSITY OF GHENT. *DEVELOPMENT OF A HIGH THROUGHPUT IRMS METHOD: A NEW ERA FOR IRMS DOPING ANALYSES.* (BE) **GRANT, JOINT FUND**

PUBLICATIONS

ALBERTSDÓTTIR AD, VAN GANSBEKE W, VAN EENOO P, POLET M. **DETECTION TIME COMPARISON OF NON-HYDROLYSED SULPHATED METABOLITES OF METENOLONE, MESTEROLONE AND 17A-METHYLTESTOSTERONE ANALYSED BY FOUR DIFFERENT MASS SPECTROMETRIC TECHNIQUES.** DRUG TEST ANAL. 2023 AUG;15(8):853-864. DOI: 10.1002/DTA.3481. EPUB 2023 APR 23. PMID: 37055939.

ALBERTSDÓTTIR AD, VAN GANSBEKE W, VAN EENOO P, POLET M. **EVALUATION OF ALTERNATIVE GAS CHROMATOGRAPHIC AND MASS SPECTROMETRIC BEHAVIOUR OF TRIMETHYLSILYL-DERIVATIVES OF NON-HYDROLYSED SULFATED ANABOLIC STEROIDS.** DRUG TEST ANAL. 2023 NOV-DEC;15(11-12):1344-1355. DOI: 10.1002/DTA.3462. EPUB 2023 MAR 14. PMID: 36843396.

BREENFELDT ANDERSEN A, BONNE TC, HANSEN J, OTURAI P, LUNDBY C. **VALIDATION OF A CLINICALLY APPLICABLE DEVICE FOR FAST AND ACCURATE QUANTIFICATION OF BLOOD VOLUME.** J CLIN LAB ANAL. 2023 MAY;37(9-10):E24928. DOI: 10.1002/JCLA.24928. EPUB 2023 JUN 18. PMID: 37332175; PMCID: PMC10388222.

ELKABETS O, NEUMARK B, AMIRAV A. **FAST SALIVA ANALYSIS BY GC-MS WITH COLD EI AND OPEN PROBE FAST GC-MS WITH COLD EI FOR THE DETECTION OF CANNABIS USAGE.** J MASS SPECTROM. 2023 DEC;58(12):E4981. DOI: 10.1002/JMS.4981. PMID: 37950648.

EULER L, MÜRDTER T, HEINKELE G, SCHWAB M, MILLER GD, EICHNER D, THOMAS A, THEVIS M. **IDENTIFICATION AND SYNTHESIS OF (Z)-3'-HYDROXY CLOMIPHENE AS A NEW POTENTIAL DOPING-RELEVANT METABOLITE OF CLOMIPHENE.** RAPID COMMUN MASS SPECTROM. 2023 SEP 15;37(17):E9599. DOI: 10.1002/RCM.9599. PMID: 37580503.

GOODRUM JM, MOORE C, CROUCH AK, EICHNER D, MILLER GD. **INFLUENCE OF MULTIPLE HUMAN CHORIONIC GONADOTROPIN ADMINISTRATIONS ON SERUM AND URINARY STEROID ATHLETE BIOLOGICAL PASSPORT PROFILES IN MALES.** DRUG TEST ANAL. 2023 NOV-DEC;15(11-12):1371-1381. DOI: 10.1002/DTA.3579. EPUB 2023 SEP 25. PMID: 37749856.

HOPKER J. **PERFORMANCE MONITORING FOR ANTI-DOPING**

HEILAND CE, MARTIN L, ZHOU X, ZHANG L, ERICSSON M, MARCHAND A. **DRIED BLOOD SPOTS FOR ERYTHROPOIETIN ANALYSIS: DETECTION OF MICRO-DOSES, EPO C.577DEL VARIANT AND COMPARISON WITH IN-COMPETITION MATCHING URINE SAMPLES.** DRUG TEST ANAL. 2023 NOV 9. DOI: 10.1002/DTA.3596. EPUB AHEAD OF PRINT. PMID: 37942506.

PUBLICATIONS

LORIA F, MARET E, SCHOBINGER C, KUURANNE T, GRABHERR S, LEUENBERGER N. **THE EFFECTS OF IRON INJECTION ON BLOOD DOPING BIOMARKERS IN DRIED BLOOD SPOTS**. DRUG TEST ANAL. 2023 APR;15(4):444-448. DOI: 10.1002/DTA.3407. EPUB 2022 NOV 17. PMID: 36354188.

REICHEL C, ERCEG D, LORENC B, SCHEIBLHOFER V, FARMER L, ZANITZER K, GEISENDORFER T, GMEINER G, THEVIS M. **DATA FROM A MICRODOSED RECOMBINANT HUMAN ERYTHROPOIETIN ADMINISTRATION STUDY APPLYING THE NEW BIOTINYLATED CLONE AE7A5 ANTIBODY AND A FURTHER OPTIMIZED SARCOsyl POLYACRYLAMIDE GEL ELECTROPHORESIS PROTOCOL**. DRUG TEST ANAL. 2023 FEB;15(2):163-172. DOI: 10.1002/DTA.2989. EPUB 2021 JAN 21. PMID: 33450134.

TOBIAS **LIQUID CHROMATOGRAPHY COUPLED TO ISOTOPE RATIO MASS SPECTROMETRY EXPANDED TO INCLUDE ORGANIC MOBILE PHASES** 2023 JUN

PRESENTATIONS

AHRENS, BRIAN. **A PEEK UNDER THE HOOD: URINALYSIS ADVANCEMENTS AND COMPLEXITIES INSIDE AN ANTI-DOPING LABORATORY.** APRIL 2023. POWERPOINT PRESENTATION.

BIDLINGMAIER, MARTIN. **FUTURE OF GH-ISOFORMS METHOD.** APRIL 2023. POWERPOINT PRESENTATION.

DEHNES, YVETTE. **NEW MODULES IN THE ABP AND CONFOUNDING FACTORS + DBS AS MATRIX - GAINS AND CHALLENGES.** APRIL 2023. POWERPOINT PRESENTATION.

EICHNER, AMY. **TEN YEARS OF THE HIGH-RISK LIST - WHAT WE HAVE LEARNED.** APRIL 2023. POWERPOINT PRESENTATION.

EICHNER, DANIEL. **THE RESEARCH "PROCESS" IN THE LABORATORY: CHALLENGES AND SUCCESSES.** APRIL 2023. POWERPOINT PRESENTATION.

ELLIS, DAVE. **NUTRITION FACTS PANELS & EMERGING PROHIBITED SUBSTANCE RISKS.** APRIL 2023. POWERPOINT PRESENTATION.

FEDORUK, MATTHEW. **ADOPTION AND BENEFITS OF DRIED BLOOD SPOT TESTING TO ATHLETES AND ANTI-DOPING: THE ROAD TO IMPLEMENTATION.** APRIL 2023. POWERPOINT PRESENTATION.

GOODRUM, JENNA. **IMPACT OF BIOTIN SUPPLEMENTATION ON ANTI-DOPING HCG TESTING.** APRIL 2023. POWERPOINT PRESENTATION.

HOOFNAGLE, ANDREW. **COLLAGEN TURNOVER: WEAVING THE STRANDS TOGETHER.** APRIL 2023. POWERPOINT PRESENTATION.

HOPKER, JAMES. **PERFORMANCE MONITORING FOR ANTI-DOPING.** SEPTEMBER 2023. POWERPOINT PRESENTATION.

HUYNH, HUU HIEN. **PAVING THE WAY TOWARD STANDARDIZATION OF COLLAGEN TURNOVER BIOMARKERS IN HUMAN SERUM AND CAPILLARY BLOOD.** APRIL 2023. POSTER PRESENTATION.

JANSSENS, LIESL. **ACTIVITY-BASED DETECTION FO THE HIF STABILIZERS: A FUTURE-PROOF COMPLEMENTING METHOD IN DOPING CONTROL?.** APRIL 2023. POSTER PRESENTATION.

KUURANNE, TIIA. **URINALYSIS ADVANCEMENTS AND COMPLEXITIES INSIDE AN ANTI-DOPING LABORATORY.** APRIL 2023. POWERPOINT PRESENTATION.

MILLER, GOEFFREY. **ADVANCING THE GH ISOFORMS TEST USING ALTERNATIVE CAPILLARY COLLECTION METHODS.** APRIL 2023. POWERPOINT PRESENTATION.

NAUD, JEAN-FRANCOIS. **NEW METHOD FOR THE DETECTION OF TGF- β SUPERFAMILY LIGAND TRAP MOLECULE IN BLOOD.** APRIL 2023. POWERPOINT PRESENTATION.

NORDSBORG, NIKOLIA. **ANTI-DOPING CLINICAL TRIALS.** APRIL 2023. POWERPOINT PRESENTATION.

PRESENTATIONS

PEREIRA, HENRIQUE. **ZEBRAFISH WATER TANK DIVING INTO THE METABOLISM OF DOPING AGENTS**. APRIL 2023. POWERPOINT PRESENTATION.

PONZETTO, FEDERICO. **ADVANCEMENTS OF BLOOD STEROID PROFILE: A PCC-FELLOW EXPERIENCE**. APRIL 2023. POWERPOINT PRESENTATION.

SAWKA, MICHAEL. **BRIEF INTRODUCTION AND OVERVIEW OF PERFORMANCE HEMATOLOGY WORKING GROUP (PHWG)**. APRIL 2023. POWERPOINT PRESENTATION.

SOLHEIM, SARA. **FURTHER DEVELOPMENT OF BLOOD TESTING: ABP, DETERRENCE AND VIRTUAL TESTING**. MAY 2023. POWERPOINT PRESENTATION.

SOLHEIM, SARA. **FROM A NADO TO A JOINT PCC FELLOWSHIP AT A WADA LAB AND A SCIENTIFIC UNIVERSITY**. APRIL 2023. POWERPOINT PRESENTATION.

THEVIS, MARIO. **RESEARCH SUPPORTING RESULTS MANAGEMENT DECISIONS: ADMINISTRATION STUDIES TO ELUCIDATE DOPING VS. CONTAMINATION SCENARIOS**. APRIL 2023. POWERPOINT PRESENTATION.

TOBIAS, HERBERT. **LIQUID CHROMATOGRAPHY COUPLED TO ISOTOPE RATIO MASS SPECTROMETRY EXPANDED TO INCLUDE ORGANIC MOBILE PHASES**. JUNE 2023. POWERPOINT PRESENTATION.

TRAVIS, JOHN. **OBSERVATIONS ON THE IMPACT OF AN INTERRUPTED SUPPLY CHAIN AND CERTIFIED FOR SPORT**. APRIL 2023. POWERPOINT PRESENTATION.

ZIMMERMAN, MICHAEL. **MOLECULAR NETWORKING FOR THE OPEN DETECTION OF NOVEL PERFORMANCE-ENHANCING STEROIDS**. JUNE 2023. POWERPOINT PRESENTATION.



Financials

PARTNERSHIP FOR
clean competition

**INDEPENDENT AUDITOR'S REPORT AND FINANCIAL STATEMENTS
DECEMBER 31, 2023**

The following documents are excerpts from an independent audit of the
Partnership for Clean Competition's finances.

Independent Auditor's Report

Board of Governors
Partnership for Clean Competition
Research Collaborative
Colorado Springs, Colorado

Opinion

We have audited the financial statements of Partnership for Clean Competition Research Collaborative (the Organization), which comprise the statements of financial position as of December 31, 2023, and 2022, and the related statements of activities, functional expenses and cash flows for the years then ended, and the related notes to the financial statements.

In our opinion, the accompanying financial statements present fairly, in all material respects, the financial position of the Organization as of December 31, 2023 and 2022, and the changes in its net assets and its cash flows for the years then ended in accordance with accounting principles generally accepted in the United States of America.

Basis for Opinion

We conducted our audits in accordance with auditing standards generally accepted in the United States of America (GAAS). Our responsibilities under those standards are further described in the Auditor's Responsibilities for the Audit of the Financial Statements section of our report. We are required to be independent of the Organization and to meet our other ethical responsibilities, in accordance with the relevant ethical requirements relating to our audits. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

Responsibilities of Management for the Financial Statements

Management is responsible for the preparation and fair presentation of the financial statements in accordance with accounting principles generally accepted in the United States of America, and for the design, implementation, and maintenance of internal control relevant to the preparation and fair presentation of financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, management is required to evaluate whether there are conditions or events, considered in the aggregate, that raise substantial doubt about the Organization's ability to continue as a going concern within one year after the date that these financial statements are available to be issued within one year after the date that these financial statements are available to be issued.

Auditor's Responsibilities for the Audit of the Financial Statements

Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion. Reasonable assurance is a high level of assurance but is not absolute assurance and therefore is not a guarantee that an audit conducted in accordance with GAAS will always detect a material misstatement when it exists. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control. Misstatements are considered material if there is a substantial likelihood that, individually or in the aggregate, they would influence the judgment made by a reasonable user based on the financial statements.

In performing an audit in accordance with GAAS, we:

- Exercise professional judgment and maintain professional skepticism throughout the audit.
- Identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, and design and perform audit procedures responsive to those risks. Such procedures include examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements.
- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Organization's internal control. Accordingly, no such opinion is expressed.
- Evaluate the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluate the overall presentation of the financial statements.
- Conclude whether, in our judgment, there are conditions or events, considered in the aggregate, that raise substantial doubt about the Organization's ability to continue as a going concern for a reasonable period of time.

We are required to communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit, significant audit findings, and certain internal control-related matters that we identified during the audit.

Forvis Mazars, LLP

**Colorado Springs, Colorado
July 26, 2024**

Partnership for Clean Competition Research Collaborative
Statements of Financial Position
December 31, 2023 and 2022

	<u>2023</u>	<u>2022</u>
ASSETS		
Cash and cash equivalents	\$ 1,048,580	\$ 544,317
Restricted cash	450,755	779,377
Contributions receivable	150,000	300,000
Prepaid expenses	18,463	26,574
Prepaid fellowship	<u>142,500</u>	<u>152,500</u>
Total assets	<u>\$ 1,810,298</u>	<u>\$ 1,802,768</u>
LIABILITIES AND NET ASSETS		
Accounts payable and accrued liabilities	<u>\$ 119,357</u>	<u>\$ 119,571</u>
Net Assets		
Without donor restrictions	<u>1,690,941</u>	<u>1,683,197</u>
Total liabilities and net assets	<u>\$ 1,810,298</u>	<u>\$ 1,802,768</u>

Partnership for Clean Competition Research Collaborative
Statements of Activities
Years Ended December 31, 2023 and 2022

	<u>2023</u>	<u>2022</u>
	Without Donor Restrictions	Without Donor Restrictions
Revenues, Gains and Other Support		
Contributions	\$ 1,750,000	\$ 1,950,000
Interest income	28,869	6,169
Other income	104,127	25,000
	<u>1,882,996</u>	<u>1,981,169</u>
Total revenues, gains and other support		
Anti-doping research	1,662,503	2,169,222
Management and general	184,919	177,353
Fundraising	27,830	49,824
	<u>1,875,252</u>	<u>2,396,399</u>
Total expenses		
Change in Net Assets	7,744	(415,230)
Net Assets, Beginning of Year	<u>1,683,197</u>	<u>2,098,427</u>
Net Assets, End of Year	<u>\$ 1,690,941</u>	<u>\$ 1,683,197</u>

**Partnership for Clean Competition Research Collaborative
Statement of Functional Expenses
Year Ended December 31, 2023**

	2023			
	Program Services	Management and General	Support Services	Total
	Anti-Doping Research	Fundraising	Total Support Services	Total
Research	\$ 1,109,369	-	-	\$ 1,109,369
Fellowships and consultants	245,000	-	-	245,000
Salaries	156,100	44,600	22,300	223,000
Benefits	-	41,254	4,539	45,793
Travel	18,325	-	-	18,325
Conference	78,740	-	-	78,740
Supplies and office expenses	-	15,393	-	15,393
Website expenses	13,519	-	-	13,519
Insurance	-	22,732	-	22,732
Advertising	28,804	-	-	28,804
Intellectual property	5,766	-	-	5,766
Professional services and dues	6,880	60,940	991	68,811
Total	<u>\$ 1,662,503</u>	<u>\$ 184,919</u>	<u>\$ 27,830</u>	<u>\$ 1,875,252</u>

**Partnership for Clean Competition Research Collaborative
Statement of Functional Expenses
Year Ended December 31, 2022**

	2022			
	Program Services	Management and General	Support Services	Total
	Anti-Doping Research	Fundraising	Total Support Services	Total
Research	\$ 1,825,766	-	-	\$ 1,825,766
Fellowships and consultants	70,472	-	-	70,472
Salaries	149,991	42,854	21,427	214,272
Benefits	-	43,680	4,853	48,533
Travel	14,861	-	22,611	37,472
Conference	25,515	-	-	25,515
Supplies and office expenses	-	9,354	9,354	9,354
Website expenses	13,708	-	-	13,708
Insurance	-	23,658	-	23,658
Advertising	31,485	-	-	31,485
Intellectual property	30,881	-	-	30,881
Professional services and dues	6,480	57,395	933	64,808
Miscellaneous expense	63	412	-	475
Total	\$ 2,169,222	\$ 177,353	\$ 49,824	\$ 2,396,399

Partnership for Clean Competition Research Collaborative
Statements of Cash Flows
Years Ended December 31, 2023 and 2022

	<u>2023</u>	<u>2022</u>
Operating Activities		
Change in net assets	\$ 7,744	\$ (415,230)
Changes in		
Contributions receivable	150,000	(300,000)
Prepaid expenses	8,111	(21,104)
Prepaid fellowship	10,000	(124,375)
Accounts payable and accrued liabilities	(214)	(513,457)
	<u>175,641</u>	<u>(1,374,166)</u>
Change in Cash, Cash Equivalents and Restricted Cash	175,641	(1,374,166)
Cash, Cash Equivalents and Restricted Cash, Beginning of Year	<u>1,323,694</u>	<u>2,697,860</u>
Cash, Cash Equivalents and Restricted Cash, End of Year	<u>\$ 1,499,335</u>	<u>\$ 1,323,694</u>
Reconciliation of Cash, Cash Equivalents and Restricted Cash on the Statements of Financial Position		
Cash and cash equivalents	\$ 1,048,580	\$ 544,317
Restricted cash	<u>450,755</u>	<u>779,377</u>
	<u>\$ 1,499,335</u>	<u>\$ 1,323,694</u>